Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Original) An apparatus for delivering water vapor to a gas comprising:

a plurality of hollow fiber membranes each defining a passage for the flow of gas from an upstream end of said passage to a downstream end of said passage;

an enclosure enclosing said hollow fiber membranes, said enclosure having an air inlet positioned to direct air to said upstream end of each of said passages of said hollow fiber membranes and an air outlet positioned to direct air from said downstream end of each of said passages of said hollow fiber membranes, said enclosure also having a water inlet positioned to direct water toward outer surfaces of said hollow fiber membranes and a water outlet positioned to direct water from said enclosure; and

said hollow fiber membranes having a combined surface area in the range of about 90 square centimeters to about 110 square centimeters.

2. (Original) The apparatus of claim 1 wherein said hollow fiber membranes are configured to resist water breakthrough for at least one hour when gas flow is absent and the static water pressure is about 47 mmHg.

3. (Original) The apparatus of claim 1 wherein said hollow fiber membranes are configured such that a water flux after an initial water breakthrough does not exceed about 0.21 milliliters per minute at a static water pressure of 47 mmHg.

4. (Original) A method for heating and humidifying a gas comprising the steps of:

(a) delivering gas through a plurality of hollow fiber membranes at a flow rate of about 1 liter per minute to about 8 liters per minute;

(b) contacting outer surfaces of the hollow fiber membranes with water at a temperature of about 33°C to about 43°C; and

(c) maintaining the combined surface area of the hollow fiber membranes between about 90 square centimeters and about 110 square centimeters.

5. (Original) The method of claim 4 further comprising the step of providing the gas with a relative humidity at about 80% to about 100%.

6. (Original) The method of claim 4 further comprising the step of providing the gas with a relative humidity of about 95% at 5 liters per minute.

7. (Original) The method of claim 4 further comprising the step of maintaining a pressure drop through the hollow fiber membranes less than about 100 mmHg at 5 liters per minute.

8. (Original) A system for delivering humidified gas to a patient, said system comprising:

means for receiving water;

means for receiving gas; and

an apparatus in flow communication with said water receiving means and said gas receiving means, said apparatus being configured to deliver vapor form water to gas, said apparatus comprising:

a plurality of hollow fiber membranes each defining a passage for the flow of gas from an upstream end of said passage to a downstream end of said passage;

an enclosure enclosing said hollow fiber membranes, said enclosure having an air inlet positioned to direct air to said upstream end of each of said passages of said hollow fiber membranes and an air outlet positioned to direct air from said downstream end of each of said passages of said hollow fiber membranes, said enclosure also having a water inlet positioned to direct water toward outer surfaces of said hollow fiber membranes and a water outlet positioned to direct water from said enclosure; and

said hollow fiber membranes having a combined surface area in the range of about 90 square centimeters to about 110 square centimeters.

9. (Original) The system of claim 8 wherein each of said hollow fiber membranes is configured to resist water breakthrough for at least one hour when gas flow is absent and the static water pressure is about 47 mmHg.

10. (Original) The system of claim 8 wherein each of said hollow fiber membranes is configured such that a water flux after an initial water breakthrough does not exceed about 0.21 milliliters per minute at a static water pressure of 47 mmHg.

11. (Original) The system of claim 8, said water receiving means comprising a conduit couplable to a source of water.

12. (Original) The system of claim 8, said gas receiving means comprising a conduit couplable to a source of gas.

13. (Original) An apparatus for delivering water vapor to a gas comprising:

a plurality of hollow fiber membranes each defining a passage for the flow of gas from an upstream end of said passage to a downstream end of said passage; and

an enclosure enclosing said hollow fiber membranes, said enclosure having an air inlet positioned to direct air to said upstream end of each of said passages of said hollow fiber membranes and an air outlet positioned to direct air from said downstream end of each of said passages of said hollow fiber membranes, said enclosure also having a water inlet positioned to direct water toward outer surfaces of said hollow fiber membranes and a water outlet positioned to direct water from said enclosure;

wherein said hollow fiber membranes are configured to resist water breakthrough for at least one hour when gas flow is absent and the static water pressure is about 47 mmHg; and

wherein said hollow fiber membranes are configured such that a water flux after an initial water breakthrough does not exceed about 0.21 milliliters per minute at a static water pressure of 47 mmHg.

14. (Original) The apparatus of claim 13 wherein said hollow fiber membranes have a combined surface area in the range of about 90 square centimeters to about 110 square centimeters.

15. (Original) The apparatus of claim 14 wherein said hollow fiber membranes have a combined surface area of about 100 square centimeters.

16. (New) A system for delivering humidified gas to a patient, said system comprising:

a supply unit configured to deliver humidified gas; and

a delivery tube assembly having a delivery tube with a proximal end and a distal end, said delivery tube assembly also having a fitting positioned at said proximal end of said delivery tube and adapted for connection to said supply unit, said delivery tube assembly being configured to transfer heat to the humidified gas received from said supply unit.

17. (New) The system recited in claim 16, said supply unit being configured to deliver humidified gas at a flow rate of about 1 liter per minute to about 8 liters per minute.

18. (New) The system recited in claim 16, said supply unit being configured to deliver humidified gas at a flow rate above about 20 liters per minute.

19. (New) The system recited in claim 16 further comprising a nasal cannula configured to be coupled to receive humidified gas from said distal end of said delivery tube of said delivery tube assembly.

20. (New) The system recited in claim 19, further comprising a releasable coupling configured to couple said nasal cannula to said delivery tube assembly.

21. (New) The system recited in claim 20, said releasable coupling comprising an adapter.

22. (New) The system recited in claim 16, said fitting of said delivery tube assembly being configured for releasable connection to said supply unit.

23. (New) The system recited in claim 16, said supply unit having a gas inlet configured to receive gas.

24. (New) The system recited in claim 23, further comprising means for receiving gas from a source of gas and for delivering the gas to said gas inlet of said supply unit.

25. (New) The system recited in claim 24, said gas receiving means comprising a tube.

26. (New) The system recited in claim 25, said gas receiving means further comprising a fitting configured for connection to the source of gas.

27. (New) The system recited in claim 16, said supply unit having a liquid inlet configured to receive supplemental liquid.

28. (New) The system recited in claim 27, further comprising a source of supplemental liquid coupled to said liquid inlet.

29. (New) The system recited in claim 28, said source of supplemental liquid comprising a water supply bag.

30. (New) A method for delivering humidified gas to a neonatal patient, said method comprising the steps of:

connecting a delivery tube to a supply unit configured to deliver humidified gas;

coupling a nasal cannula to the delivery tube; and

delivering humidified gas from the supply unit to the neonatal patient through a cannula at a flow rate of about 1 liter per minute to about 8 liters per minute.

31. (New) A method for assisting respiration in a neonatal patient comprising delivering heated and humidified air to a nasal passageway of the neonatal patient through a nasal cannula at a flow rate of about 1 liter per minute to about 8 liters per minute.

32. (New) A method for delivering humidified gas to a patient, said method comprising the steps of:

releasably connecting a fitting of a delivery tube assembly to a supply unit;

coupling a nasal cannula to an opposite end of the delivery tube assembly; and

delivering humidified gas from the supply unit, through the delivery tube assembly, and into the nasal cannula for delivery to the patient.

33. (New) A method for delivering humidified gas to a nasal passageway of a neonatal patient using a supply unit to deliver humidified gas, a delivery tube assembly

configured to transfer heat to the humidified gas received from the supply unit and having a delivery tube and a fitting connected to the supply unit, and a nasal cannula coupled to the delivery tube assembly, said method comprising the step of:

delivering a humidified gas from the supply unit, through the delivery tube assembly and into the nasal cannula at a flow rate of about 1 liter per minute to about 8 liters per minute.